WICHE INSIGHTS
Western Interstate Commission for Higher Education
October 2026

Methods for Institutions to Enhance Information Systems to Support Transfer Advising Activities

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Advisor Capacity

Upon opening the request for proposals (RFP) for the Technology and Partnerships for Transfer Success (Transfer Partnerships) initiative, the Western Interstate Commission for Higher Education (WICHE) did not put any particular emphasis on the novelty or innovation of technology solutions. The selection committee was instead asked to evaluate for readiness to implement, demonstrated transfer flow, and clarity of outcomes indicators. In almost every case, project participants identified that the technology solution they had chosen was, at least in part, projected to help alleviate pressure on advisor capacity.

Transfer between two institutions with a strong transfer relationship can introduce any number of variables including credit for prior learning (CPL), a workforce credential, or a technical or associate degree in a related or unrelated field to their desired program of study. Importantly, that is before one starts to consider those students who have academic history with more than one institution, a move between states, a change of major, or curricular changes at the sending or receiving institution. Advisors are asked to do the difficult work of accurately and transparently informing students of whether and how their credits could or should apply to their program of study. To understand all the pitfalls, variables, and special cases, advisors need to understand not only their own institution, but partner institutions as well, and the tools they are given are not always sufficient to support students appropriately. When faced with manual processes, it is not surprising that institutions may turn to technology solutions to alleviate the advisor workload.

This is the third in a four-part series that highlights findings from the **Technology and Partnerships for Transfer Success** initiative that explored how technology and cross-institutional partnerships can improve transfer pathways and student outcomes. The briefs share insights and lessons to inform efforts to make credit transfer more seamless, transparent, and effective.

Learn more at wiche.edu/technology-partnerships-for-transfer-success.

Information Systems and Interoperability

Learning Management Systems (LMSs), Student Information Systems (SISs), and Customer Relationship Management (CRMs) each hold information about students that higher education professionals use to understand student progress and success.

These systems have varying capacity to share data and interoperate. Transfer students often generate records across multiple institutions and information systems. As institutions work to understand and support these students' pathways, important milestones, credits, and interactions may be housed in separate systems, requiring additional effort to assemble a complete picture of the student experience. The complexity increases when information must be coordinated across institutional boundaries.

Project Example: University of Arizona and Pima Community College

The University of Arizona has developed a boutique transfer platform that seeks to serve students with complex academic backgrounds. The UnBlockEd platform is designed as an exchange that gives students earlier insights into how particular courses transfer to specific programs at target institutions. The platform represents a long-term effort with multiple funders. This chapter of UnBlockEd focused on transfer articulation capability that leverages curricular analytics to create efficient cross-institutional degree plans using Pima Community College as a test case.

The most challenging aspect of this part of the project was uploading the Pima Community College degree requirements, courses, and prerequisites into the UnBlockEd platform. The University of Arizona's information and course articulations had been collected in an earlier iteration of the project. The significant amount of manual labor involved with uploading Pima Community College's course materials to the platform represented a significant barrier to scaling the platform to other institutions not supported by a grant, a situation that came to bear when the University of Arizona and Pima Community College initiated a relationship with Tohono O'odham Community College (AZ) to make the platform available to their students.

To address this challenge, the institutions contracted with an outside consultant (Aleysian) to evaluate and streamline the architecture of UnBlockEd. Aleysian posited a shared Salesforce (CRM) environment designed as a multi-tenant "hub" that would integrate directly with SIS, LMS, and degree audit programs, and reach across institutions to support a multi-tenancy transfer marketplace, AI integrations to alleviate manual data entry and a case management system to support course equivalency reviews and academic process approvals associated with the transfer articulation and change of major experiences. The integration of SIS and LMS environments envisioned a powerful self-advising capacity that would allow students a "GPS-like" experience for students that would automatically recalculate and redirect students when they pass, fail, change, or drop their coursework. Integration with information systems would be dependent on middleware platform or direct application programming interface (API) connectivity, which come with security and data governance concerns, synchronization, error handling, monitoring, and reconciliation needs.

The approach is powerful, as it preserves institutional information systems as the persistent and central source of truth, integrates data from across systems without requiring the duplication of data submission, and produces an elevated user experience for institutional staff, advisors, and students alike. Depending on the context, it also may require a great deal of capital, change management, and procedural change at institutions to reimagine business processes. The startup cost of technology is not the only cost that must be evaluated — IT resources, subscription or licensing fees, and ongoing training/refining and certification are all part of a technology investment and should be considered in the calculation of return on technology investment.

Data Sharing

A key challenge to the interoperability of systems to support transfer is data management, ownership, and collaboration. As noted, these challenges can exist within institutions between their own systems, but as one considers the communication of data across institutions or systems, challenges around data ownership and security are often amplified.

Project Example: Northern Arizona University, Maricopa Community College District, and Mohave College

The project among Northern Arizona University (a public university governed by the Arizona Board of Regents), Maricopa Community College District (MCCD), and Mohave College was ambitiously aimed at leveraging common data available at the state level through the Arizona Statewide System for Information on Student Transfers (ASSIST) database to identify and re-engage a population of "some college, no credential" (SCNC) students. The ASSIST database is a relational database containing enrollment and degree information for students across Arizona's public universities and community college districts. The system records student enrollment, specific degree milestones, and inter-institutional transfers. These data provided the foundation for the project's effort to identify and re-engage SCNC students. The goal was to develop a technology system to connect silos of information between student information, customer relationship management systems, and the ASSIST database.

To support this work, the project proposed engaging external and internal consultants to facilitate data sharing, training, and software licensing for any necessary upgrades to technology systems to support data-sharing, retrieval, and outreach campaigns. While AZ Transfer, the body responsible for data reporting in ASSIST, is highly valued among stakeholders, it returns aggregated, de-identified data back to institutions. This project required additional information and data-sharing capabilities to support its original objectives, and as a result, project participants also explored other collaborative student success initiatives.

This project was part of a larger suite of student access initiatives that unite under the banner of the Arizona Attainment Alliance (A++). Along with WICHE's Transfer Partnerships initiative, A++ incorporates Northern Arizona University's Universal Admissions Program, AZ Ahead, Cochise READY, Summer Bridge Programs, and Guided Pathways. These programs are dependent upon data sharing relationships to understand the origin, interactions, inflection points, progress, and success of students moving across the state. The Transfer Partnerships participants built on these relationships to move their project forward.

The institutions participating in A++ proposed and began work on a "data lake," a centralized repository designed to store and integrate data from multiple sources, to move toward the goal of real-time and comprehensive data sharing. Data lakes are a solution to the problem of complex, multi-source, large-scale data sets; however, the question of data ownership is significant, and higher education institutions have significant legal responsibilities related to the protection of student information. This hurdle required manual processing by registrars at all participating institutions, adding administrative burden. At the time that WICHE attended an in-person A++ meeting hosted by Northern Arizona University, the issue of data lake ownership, stewardship, and funding was ongoing.

To continue the efforts toward a true cross-institutional solution, NAU spearheaded the purchase of Ellucian Transfer as an alternative to the ASSIST solution with the goal of automating reverse transfer discovery using cross-institutional degree audits and articulations. Ellucian Transfer's team works with each institution to connect the Ellucian Transfer tool to their respective SISs. The work includes understanding and properly connecting to the SIS tables and integrating articulation rules. The advisors supporting the initiative are specialists with experience analyzing reverse transfer manually. They will now leverage the Ellucian Transfer system as well as SIS to identify and validate candidates. CRM will be used to notify completers and to conduct outreach to those students close to completion. This approach is designed to alleviate the manual processes for the advisor specialists and allow for a scale of outreach to SCNC students not previously possible.

Technology Solutions and Institutional Capacity

Technology solutions often seek to resolve interoperability and the issue of providing fast, accurate, and often self-directed advising. These investments are necessary and expected at the modern institution. However, resources beyond technology can be difficult to predict. Competing initiatives or a lack of resources can prevent advancement to alleviate institutional stressors, continuing inefficiencies, and manual work. Most, if not all, transfer solutions require the often-difficult, trust-building relationship of curricular alignment between faculty within specific disciplines between institutions, followed by scribing this curriculum map into the technology solution. This work is usually detailed and labor-intensive, as curricular requirements are subject to ongoing revision and maintenance. Technology tools need automated mechanisms to trigger human intervention and oversight at bottlenecks and transfer risks. Technology solutions that seek to resolve these challenges often require customization, purchases of other solutions, and institutional buy-in.

As higher education institutions, state systems, and workforce entities are increasingly asked to demonstrate the return on investment of pursuing higher education in concrete and quantitative ways, the issue of accurate, timely, comprehensive, and secure data sharing across and within institutions is critical to the success of any multi-institutional and longitudinal study. When tracking student pathways and outcomes across institutions, sectors, and state lines, there are opportunities to establish reciprocal reporting relationships that strengthen institutions' understanding of their students. At the same time, modifying and modernizing existing data systems is often a complex and resource-intensive undertaking.

As one project participant shared in the final report:

> *"Funding can help secure technology but it cannot change cultural and structural factors that can stall progress; change management is critical to success."*

Conclusion

Supporting the transfer of student credit across higher education institutions is a multifaceted and ongoing challenge for postsecondary education. Although technology solutions can address certain aspects of the transfer process, such as clarifying curricular pathways, increasing visibility of institutional relationships, leveraging data to identify potential transfer students, and helping students' navigation of available resources, many elements of transfer

continue to depend on human judgment, relationship-building, and support.

The issues most frequently cited by the project participants included limited understanding and collaboration between faculty at different institutions, the need to build and sustain relationships among academic leaders, challenges associated with staff and leadership turnover, and persistent capacity constraints in advising and registrars' offices. While many technology solutions promise the streamlining and support of transfer advising, they still require substantial staff effort to analyze curricula, document requirements, establish standard operating procedures, maintain curricular updates, and support the training of staff and students. In many cases, institutions must also invest additional effort to integrate these solutions with existing SISs or LMSs and other campus technologies.

Acknowledgments

WICHE extends its deep appreciation to the experts and practitioners from across the region who participated in the community of practice. Representing a wide range of institution types, leadership, faculty and staff roles, and local contexts, each participant contributed important insights and perspectives that informed the conversation. WICHE acknowledges that each institution's project may have engaged additional staff, faculty, leaders, and students not listed here.

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Bolded individuals acted as project leads and held primary responsibility for communicating across institutions and producing project deliverables to WICHE.

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The Western Interstate Commission for Higher Education (WICHE) is a regional interstate higher education compact of 15 Western states and the U.S. Pacific Territories and Freely Associated States. Since 1953, WICHE has focused on its mission of expanding educational access and excellence for all residents of the West. By promoting innovation, cooperation, resource sharing, and sound public policy, WICHE strengthens higher education's contributions to the region's social, economic, and civic life.

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